

A.

Books and articles read jointly by the authors in preparation for the courses

- Bechtel, W, Stufflebeam, R, Mundale, J, Mandik, P (2001) Philosophy and the Neurosciences: A Reader. Malden, MA; Wiley-Blackwell.
- Bennett M, Hacker, P (2003) Philosophical Foundations of Neuroscience. Malden, MA: Wiley-Blackwell.
- Burghardt, G, Sutton-Smith, B (2005) The Genesis of Animal Play: Testing the Limits. Cambridge, MA: MIT Press.
- Churchland, P (2002) Brain-Wise: Studies in Neurophilosophy. Cambridge, MA: MIT Press.
- Finger, S (2001) Origins of Neuroscience: A History of Exploration into Brain Function. New York, NY: Oxford University Press.
- Gazzinga, M (2008) Human: The Science Behind What Makes Us Unique. New York, NY: Harper-Collins Press.
- Gross, C (1999) Brain, Vision, Memory: Tales in the History of Neuroscience. Cambridge, MA: MIT Press.
- Solso, R (2003) The Psychology of Art and the Evolution of the Conscious Brain. Cambridge, MA: MIT Press.

B.

Special Topic NEUR 191: Neuroscience of Film, Space, and Play

Hewlet G. McFarlane and Joel Richeimer

Office Hours:

McFarlane: MW 11:00AM – 12:00PM; Tuesday 8:30AM – 9:30AM; other hours by appointment

Office: 413 Samuel Mather Hall; PBX 5375; McFarlaneh@Kenyon.edu

Richeimer: TuTH 2:40-4 pm or by appointment

Office: Ascension Hall 222; PBX 5288; Richeimerj@kenyon.edu

COURSE DESCRIPTION

This course is going to look at neuroscience from the point of view of the humanities and the humanities from the point of view of neuroscience. It will be taught by both a neuroscience and a humanities professor. We won't be alternating lectures, instead we will teach the class--from our differing points of views--simultaneously. Basically, we will confront each other's perspective at each class session. We are going to argue, engage in a public discussion, expose where there is ignorance in our respective disciplines, and learn from each other. Science is a public discourse guided by evidence, experimentation, reason and imagination. It is a community activity that relies on feedback and interaction. We are going to attempt to replicate that in the classroom. We are going to look at issues in Film, the Perception of Space, and Play Behaviors in both animals and humans, and examined them through a neuroscientific lens. We plan to treat the humanities and sciences as partners working together on the same problems.

Students are expected and encouraged to participate in these conversations.

DISTRIBUTION REQUIREMENTS

Starting fall 2010 -- this course can be paired with NEUR 112 (Introduction to Neuroscience), BIOL 103 (Biology in Science Fiction) or BIOL 105 (Biology of Exercise) in order to satisfy the Natural Science distribution requirement. Neuroscience 191 is a non-majors introductory course. Anyone who plans to major or concentrate in Neuroscience will need to take "Introduction to Neuroscience" (NEUR 112).

REQUIRED TEXTS TO BE PURCHASED FOR THE COURSE

Charles Darwin	<i>On Natural Selection</i>
Edwin Abbott	<i>Flatland: A Romance In Many Dimensions</i>
V.S Ramachandran	<i>A Brief Tour Of Human Consciousness</i>
Oliver Sacks	<i>The Man Who Mistook His Wife For A Hat</i>
Joseph Anderson	<i>The Reality Of Illusion</i>

COURSE OUTLINE

Introduction: Naturalism, Neuroscience and the Humanities

BACKGROUND

Introduction to the Philosophy of Science

READING: Karl Popper – “Conjectures and Refutations”

Introduction to the Humanities as a Research Program

READING: Martha Nussbaum -- “Introduction: Form and Content, Philosophy and Literature”
Virginia Woolf – “The New Dress”

Introduction to Neuroscience as a Research Program

READING: Ramachandran – *A Brief Tour of Human Consciousness*
Oliver Sacks – *A Man Who Mistook His Wife for a Hat* (Selections)

Introduction to Naturalism and Natural Selection

READING: Charles Darwin – *On Natural Selection*

Introduction to Ethology

READING: Jakob von Uexkull – “A Stroll through the World of Animals and Men”

THE COURSE

Play

READING: L. Dugatkin -- *Principles of Animal Behaviors*, Chapter 15
K. Thompson – “Self Assessment in Juvenile Play”
J. Huizinga -- *Homo Ludens* (selections)

Space

READING: Edwin Abbott – *Flatland*
Rudolf Arnheim – “Space”
Oliver Sacks – *A Man Who Mistook His Wife for a Hat* (Selections)

Film

READING: Joseph Anderson – *The Reality of Illusion*

GRADING POLICY

Quizzes	400 points
Thesis	100 points
Paper	150 points
Examination	300 points
Participation/Posts	50 points

TOTAL 1000 points

DISABILITY STATEMENT

If you have a hidden or visible disability, which may require classroom or test accommodations, please see me as soon as possible during a scheduled office hour. If you have not already done so, you must register with the Coordinator of Disability Services (Erin Salva, salvae@kenyon.edu, x-5145), who is the individual responsible for coordinating accommodations and services for students with disabilities. All information and documentation of disability is strictly confidential. No accommodations will be granted in this course without notification from the Office of Disability Services.

CLASS RULES

- *Attendance:* Normally, class attendance is mandatory. However, to limit the spread of influenza (flu) on campus, this policy has been modified. Students who are ill with the flu or have flu-like symptoms should exercise due caution and skip class and all other public gatherings until they are well. This period of self-isolation should average about one week. The student should inform the instructor by email or by phone that they will be absent and make arrangements to make up missed work. When in attendance, please be on time for class. Lateness will not be tolerated. Students arriving late are disruptive to the class and may be asked to leave.
- *Conduct:* This is a professional environment. I, as your professor will always treat you and your ideas with respect and I expect you will treat your colleagues and me in a similar manner. Carrying on private conversations or sleeping during class is not allowed. Persons engaging in these or any other disruptive behaviors will be asked to leave.
Please turn off all cell phones before class begins.
- *PowerPoint Presentations and Lecture Notes:* Taking clear and accurate notes from a speaker/lecturer is a skill that must be mastered by college students. Therefore, I will not make my PowerPoint presentation and lectures notes available on the Web, nor will I hand them out in hard copy. Occasionally, I use pictures that are not in your book; in this case, I will make the pictures available on the class Moodle page.
- *Moodle Page:* There will be a class Moodle page. This page will have the most current information on what is happening in the class as well as places for you to submit assignments and take quizzes. The page can be found at: HYPERLINK "<https://moodle.kenyon.edu>". Once there, you will sign in using your campus login information. Please visit the page at least once a day to stay abreast of the class.
- *Academic Honesty:* Students engaging in dishonest academic practices (plagiarism, cheating on examinations, other related behaviors) will be referred to the Academic Infractions Boards (AIB) for a hearing. The board may recommend several penalties for students found guilty of such behaviors, including expulsion from the college. Please refer to the Student Handbook further details.
- *Examination Conduct:* Arriving late to an examination or leaving early while others are still taking the examination is disruptive to your colleagues. Therefore, you may not enter or leave the room during the examination and no one will be allowed to leave until everyone has finished taking the examination. If you are finished taking the examination before your classmates, simply turn the examination booklet face down on your desk and sit, work, or read quietly on ***material not related to the examination*** until it is time to leave.

- **Syllabus:** Note that the schedule of topics says “Tentative.” This is because we will proceed at a pace that is comfortable for the entire class and so may go faster or slower, depending on how the class responds to the particular topic. Please keep up with the class.
- **Missed Assignments:** It is assumed that students have read the syllabus and are aware of all due dates. Students will not be allowed to postpone the dates of the exams or quizzes unless they have a written excuse from the Dean's Office.
- **Posts:** All students are expected to post questions and comments to the class discussion pages on the MOODLE site. Questions posted may be used as inspiration for quiz and examination questions, and to guide and facilitate class discussions.

EXAMINATIONS

- Examinations will cover all assigned readings, lectures, classroom discussions, and films that we may view.
- **Missed Examinations:** Make-up examinations *may* be given at my discretion only to those persons having legitimately documented excuses. For all others, there are no make-up examinations. Legitimately documented excuses are those that are supported by a notice addressed to the faculty from the office of the Dean of Students or the medical center. Nothing else counts as a legitimate excuse. A grade of zero is assigned for missed examinations and assignments.
- Written excuses **will not be accepted** in the following categories:
 1. **Technical Difficulties:** This is late work that is the product of computer related difficulties. (i.e. network problems, viruses, faulty diskettes or USB drives, malfunctioning e-mail, etc). Late work in this category demonstrates a lack of regard for the work product and the caution that is necessary when using computers. The late penalty will be assessed in all cases.
 2. **Poor Scheduling:** This is late work that is the product of having too many assignments due at the same time. Late work in this category demonstrates poor planning. The late penalty will be assessed in all cases.
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The late penalty will be assessed in all cases.

C.

Special Topic: Neuroscience of Emotions, Perspective and Time (NEUR105), 2011

Period D, 1:10PM-2:30PM, Tues. & Thurs. TOM101

Room: Tomsich 101

Professors: Hewlet G. McFarlane and Joel Richeimer

Office Hours:

McFarlane: Tuesday and Thursday 10:00AM – 11:00AM; Wednesdays 1:00PM to 2:00PM;
other hours *by appointment*
Office: 413 Samuel Mather Hall; PBX: 5375; McFarlaneh@Kenyon.edu

Richeimer:

Office: Ascension Hall 222, respectively; PBX:5288; Richeimerj@kenyon.edu

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PLEASE NOTE: This course can be paired with NEUR112 (Introduction to Neuroscience), BIOL103 (Biology in Science Fiction) or BIOL105 (Biology of Exercise) in order to satisfy the Natural Science distribution requirement. Neuroscience 105 is a non-majors introductory course. Anyone who plans to major or concentrate in Neuroscience will need to take "Introduction to Neuroscience" (NEUR 112).

REQUIRED TEXTS TO BE PURCHASED FOR THE COURSE

1. The Selfish Gene, Richard Dawkins.
2. Perspective as Symbolic Form, Erwin Panofsky.
3. The Living Clock, The Orchestra of Biological Rhythms, John D. Palmer.
4. Descartes Error, Antonio Damasio.
5. Eye and Brain: The Psychology of Seeing, Fifth Edition, Richard Gregory.

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Examinations and Quizzes

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Missed Examinations

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COURSE OUTLINE

Introduction: Naturalism, Neuroscience and the Humanities

BACKGROUND

Functionalism and Natural Selection

READING: Dawkins – “The Selfish Gene”

Introduction to Neuroscience and Cognition

READING: Antonio Damasio – “Descartes Error” Selected Chapters

Perception

READING: Richard Gregory – “*Eye and Brain*”

THE COURSE

Perspective

READING: Erwin Panofsky – “Perspective as Symbolic Form”

Time

READING: J.D Palmer – “The Living Clock”
William James – “The Perception of Time”
Oliver Sacks – “Speed; Aberrations of Time and Movement”
Ivry and Spencer (2004) -- “Neural Representation of Time.”
St Augustine -- Confessions

Emotions

READING: William James – “What is an Emotion”
Antonio Damasio – “Descartes Error” Selected Chapters
Jackson Beatty – “The Human Brain: Essentials of Behavioral Neuroscience; Chapter 9; Emotions and Stress.”

GRADING POLICY

Quizzes	400 points
Midterm	150 points
Presentation/Paper	200 points
Final Examination	200 points
Participation/Posts	50 points
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TOTAL	1000 points

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D.

Example of a Study Guide

Study Guide for Karl Popper’s “Conjectures and Refutations”

- (1) What is the demarcation problem? How is it distinct from the problem of truth?
- (2) Why can't it be simply resolved by saying that science uses the empirical method?
- (3) Many theories have immense explanatory power. Why is Popper suspicious of that? Isn't the goal of science to have theories of immense explanatory power?
- (4) How is Einstein's theory different from, e.g., Adler's theory?
- (5) For Popper, not all confirmations count equally. Which count more and why?
- (6) Why is irrefutability not a virtue?
- (7) What does Popper mean by “ad hoc” modification? What price does one pay for using ad hoc modifications?

- (8) Why are ‘clinical observations’ not pure observations? Why aren’t there pure observations?
- (9) If a theory is not scientific, is it meaningless? Contrast to the Vienna Circle.
- (10) The logical positivists were inductivists. Popper is a deductivist. Explain.
- (11) What is the problem of induction? How does Hume ‘solve’ it?
- (12) What is wrong with his theory? Popper gives three objections.
- (13) Popper does not think we make generalizations from neutral observations as empiricists claim. What does he think we do?
- (14) What is an induction machine? Why won’t it work?
- (15) What does Popper mean by the dogmatic attitude and the critical attitude? What is their relationship?

E.

Instructions for the thesis statement and paper

Please choose and critically read one of the papers from the list provided. After reading the paper answer the following question:

1. What is the main thesis of the paper? Are there secondary theses? What are they? (50 points).
2. What is the evidence provided in support of these theses? Is there counter evidence? If so, what is it? (50 points).
3. Evaluate the evidence. Is it convincing? Are there alternative hypotheses? If so, what are they? (50 points).
4. Given the background in the paper, what is the next question that you can ask?
Formulate a testable hypothesis and briefly explain how this would be tested (100 points).
5. Please limit your response so that it is no more than 3 single spaced pages in length.

F.

Example of a forum discussion question

Based on your knowledge of ethology, neuroscience, evolution and the arts, what do you see as the value of play to human society? Why do human beings play? How would our lives be different if play did not exist? In posting your response, remember that this is a discussion and perfect answers are not necessarily the goal. Instead, we are attempting to have a conversation around interesting and perhaps controversial issues. You may respond to the postings of others, agree or disagree with their ideas, question the ideas posted, pose new questions of your own that are related to the initial question. Please conduct these online discussions in a professional manner; that is, use evidence to formulate your arguments, write in complete sentences, challenge ideas, not people.

G.

Hints for Getting a Passing Grade on the Presentations

- (1) No blow by blow accounts. Don’t get lost in the trees. Stand back after you read the article and ask – What is the main point? Why is it important? Why is it interesting? What reasons do we have in believing it? If you can’t answer those questions, you are not ready to give the presentation.

- (2) You must rehearse. Don't wing it. Don't wait to the last minute to prepare for your presentation. You can't. Your grade will suffer.
- (3) You can't read your notes. Rightly or not, people don't like it. You can look at your notes. But you are only allowed a few glances. There is no alternative. You must rehearse. And you must rehearse out loud without reading.
- (4) Oral communication has many limitations. It is not like reading. The audience can't go back and reread a point. You must provide the big picture. You must refer back to the big picture in your presentation. You must motivate the issue. You must tell us where you are in the handout. Don't over estimate the audience. They are barely listening. Repeat the main points, change your voice, use the board.
- (5) Don't tell us everything you know. If you tell us up to the boundary what you know, you will falter. You won't know it well. You won't be able to answer questions. Your presentation will be halting. You must know more than what you are telling us.
- (6) Anticipate questions. Expect questions and try to guess what they will be and then prepare.
- (7) Don't look at me to check on what you are saying. Don't try to read my facial expressions. My disgust might be due to what I had for lunch. Look at your audience.